

Amended claims:

1. An optoelectronic receiver having an optic axis (54) and comprising

a device (12) for taking in optical signals having an optic axis (54');

an optical sensor (16) for converting the optical signals into electronic signals when the optical signals fall on a sensitive surface (14) of said optical sensor (16);

a coupling element (26) for alignment of the optic axis (54') of the device (12) for taking in the optical signals on the sensitive surface (14) of the optical sensor (16);

a holder (42) for the device (12) for taking in the optical signals,

a retaining device (24) for the coupling element (26); [and]

a joint adjusting means (28) for adjusting the holder (42) for the device for taking in the optical signals and the retaining device (24) for the coupling element,

said adjusting means (28) comprises an optical bench (30), said optical bench (30) is provided with a predetermined upper surface (32) and the upper surface (32) of the optical bench (30) has means for aligning the coupling element (26) and the device (12) for taking in the optical signals,

the retaining device (24) is provided with a flat guiding surface (34) that rests on the upper surface (32) of the optical bench (30), said holder (42) surrounds or embraces the retaining device (24), the holder (42) has a flat guiding surface (52), which contacts or rests on the upper surface (32) of the optical bench (30);

and means (62) for attaching said holder (42) and said retaining device (24) in a fixed position relative to each other after an adjustment procedure to align the optical signals on the sensitive surface of the optical sensor.

6. The optoelectronic receiver as defined in claim 1, wherein said upper surface (32) of said optical bench (30) has a predetermined angular position relative to the optic axis (54) of the optoelectronic receiver (10).

10. A method of making an aligned optoelectronic receiver (10), said optoelectronic receiver (10) having an optic axis (54) and comprising a device (12) for taking in optical signals having an optic axis (54'); an optical sensor (16) for converting the optical signals into electronic signals when the optical signals fall on a sensitive surface (14) of said optical sensor (16); a coupling element (26) for alignment of the optic axis (54') of

the device (12) for taking in the optical signals on the sensitive surface (14) of the optical sensor (16); a holder (42) for the device (12) for taking in the optical signals; a retaining device (24) for the coupling element (26); and a joint adjusting means (28) for adjusting the holder (42) for the device for taking in the optical signals and the retaining device (24) for the coupling element, wherein said adjusting means (28) comprises an optical bench (30), said optical bench (30) is provided with a predetermined upper surface (32) and the upper surface (32) of the optical bench (30) comprises means for aligning the coupling element (26) and the device (12) for taking in the optical signals, wherein said retaining device (24) and said holder (42) have respective guiding surfaces (34, 52) bearing on said upper surface (32) of said optical bench (30); said method comprising the steps of:

a) providing a module (18) including the optical sensor (16), a housing (22) for the optical sensor, the coupling element (26) and the retaining device (24) for the coupling element and providing a passage (31) in the optical bench (30) for accommodating the module (18);

b) placing the module (18) in the passage (31) in the optical bench (30);

c) attaching the module (18) to the optical bench by laser welding or gluing;

d) placing the holder (42) with the device (12) for taking in

optical signals on the optical bench (30);

e) inputting a test optical signal through the device (12) for taking in the optical signals;

f) displacing the holder (42) relative to the optical bench (30) until a predetermined electrical signal is produced by the optical sensor (16) in response to the test optical signal by means of evaluation electronics (20), said electrical signal indicating attainment of an aligned configuration; and

g) after the inputting of step e) and the displacing of the holder step f), attaching the holder (42) to the optical bench (30) at attachment points (62) by means of laser welding or glueing, whereby said aligned optical receiver is formed.

Add the following claim:

11. An optoelectronic receiver having an optic axis (54) and comprising

a device (12) for taking in optical signals having an optic axis (54');

an optical sensor (16) for converting the optical signals into electronic signals when the optical signals fall on a sensitive surface (14) of said optical sensor (16);

a coupling element (26) for alignment of the optic axis (54') of the device (12) for taking in the optical signals on the sensitive surface (14) of the optical sensor (16);

a holder (42) for the device (12) for taking in the optical signals,

a retaining device (24) for the coupling element (26); [and]

a joint adjusting means (28) for adjusting the holder (42) for the device for taking in the optical signals and the retaining device (24) for the coupling element,

said adjusting means (28) comprises an optical bench (30), said optical bench (30) is provided with a predetermined upper surface (32) and the upper surface (32) of the optical bench (30) has means for aligning the coupling element (26) and the device (12) for taking in the optical signals,

the retaining device (24) is provided with a flat guiding surface (34) that rests on the upper surface (32) of the optical bench (30), said holder (42) surrounds or embraces the retaining device (24), the holder (42) has a flat guiding surface (52), which contacts or rests on the upper surface (32) of the optical bench (30);

and means (62) for attaching said holder (42) and said retaining device (24) in a fixed position relative to each other after an adjustment procedure to align the optical signals on the sensitive surface of the optical sensor; and means for generating an optical test signal (56) for self-adjustment of the optoelectronic receiver.

12. An optoelectronic receiver having an optic axis (54) and comprising

a device (12) for taking in optical signals having an optic axis (54');

an optical sensor (16) for converting the optical signals into electronic signals when the optical signals fall on a sensitive surface (14) of said optical sensor (16);

a coupling element (26) for alignment of the optic axis (54') of the device (12) for taking in the optical signals on the sensitive surface (14) of the optical sensor (16);

a holder (42) for the device (12) for taking in the optical signals,

a retaining device (24) for the coupling element (26); and

a joint adjusting means (28) for adjusting the holder (42) for the device for taking in the optical signals and the retaining device (24) for the coupling element,

the coupling element (26) has an optical axis (54) which extends perpendicular to the optical sensor (16) which is provided due to the retaining device (24) formed as a plate with parallel surfaces,

the coupling element (26) is formed as a multi-axes optical coupling element providing a plurality of optical beams which have a high parallelism and phase frequency are focused to optical sensor (16).